ALLOTMENT MANAGEMENT PLAN

CHALENDER ALLOTMENT

WILLIAMS RANGER DISTRICT

KAIBAB NATIONAL FOREST

NOVEMBER 2007

1. INTRODUCTION

This Allotment Management Plan was developed following a decision on the Environmental Assessment for Bellemont, Chalender, and Government Prairie Grazing Allotments, signed by Martie Schramm, Williams District Ranger, on September 28, 2007.

The Chalender Allotment is located near the community of Parks on the Williams Ranger District of the Kaibab National Forest. The allotment includes approximately 12,600 acres of Forest Service lands just west of the Bellemont Allotment. McDougal Flat, Davenport Hill, Pine Hill, and 7 Bar K Hill are all located within the allotment. The rural subdivision of Sherwood Forest Estates is located on the northeast side of the allotment. Dogtown Reservoir is located on the west side of Chalender, and Scholz Lake is located between Chalender and Bellemont Allotments.

2. BACKGROUND

Prior to 1991, the Chalender Allotment was grazed by sheep. The current permit for the Chalender Allotment authorizes a maximum of 115 adult cattle and 614 AUMs. The permitted grazing period is from June 15 to October 15 (123 days). The allotment is divided into three grazing pastures using a 3-pasture deferred rotation system. Current management results in cattle grazing up to 45 days in each pasture.

Table 1. Chalender Allotment; Pastures and Acres

Pasture	USFS Acres	Average Grazing Period - Days
East	4,764	52
Middle	5,479	40
West	2,323	50
Allotment Total	**12,566**	**144 Days Permitted**

Between 1996 and 2006, actual use ranged from 32 to 115 adult cattle, with the allotment fully stocked in 5 of those 11 years. Actual stocking rate has been 50 or fewer cattle (less than 1/2 of permitted cattle) since 2002, a year with very little precipitation.

Vegetation: The Chalender Allotment is dominated by ponderosa pine, ponderosa pine-Gambel oak, and grassland vegetation types. Average vegetation condition score decreased from 48 (Fair) in 1990, to 31 (Poor) in 2003 and 42 (Fair) in 2005/2006. Similar to the Bellemont Allotment, cool season grasses Arizona fescue and bottlebrush squirreltail declined during the past 20 years while the warm season grass blue grama increased. Variability in vegetation and soil condition within pastures indicates problems with livestock distribution in this allotment. Small and scattered populations of noxious weeds occur in the allotment, primarily Dalmatian toadflax, bull thistle, and spotted knapweed.

Soils and Watershed: The allotment is dominated by grassland and savannah soil types (Mollisols or mollic subgroups). Average soil condition score was 69 (Good) in 2005/2006. Average bare soil was 42% in 1990, 45% in 2003, and declined (an improvement) to 24% in 2005/2006. There are ephemeral stream channels within the allotment, but no perennial streams. Mineral Lake is an ephemeral wetland located in the East Pasture. The northern 2/3 of the ephemeral wetland area is fenced off to exclude livestock. One of the ephemeral stream channels within the western portion of the allotment feeds into Dogtown Reservoir, which is located just outside the allotment boundary on the west side. An ephemeral stream channel within the eastern portion of the allotment feeds into Scholz Lake, located east of the allotment boundary.

Wildlife: Similar to forested portions of Bellemont and Government Prairie Allotments, forested portions of Chalender provide habitat for a wide variety of bird species and small mammals, wild turkey, mule deer, and elk. Pronghorn are regularly seen in the McDougal Flat grassland. Known goshawk nest areas are located within the allotment. Potential pine-oak Mexican spotted owl Restricted Habitat occurs in forested portions of the allotment, and the spotted owl Critical Habitat unit UGM-13 overlaps portions of the West, Middle, and East Pastures. Spotted owls are not known to occur in or near the allotment, and the nearest spotted owl Protected Activity Center (PAC) is approximately 4 miles to the west on Bill Williams Mountain.

3. DESIRED CONDITIONS

The overall desired condition is maintenance of sustainable ecosystems within and surrounding the Chalender Allotment in which livestock grazing does not impair important ecosystem functions, such as providing habitat to support abundant wildlife populations and maintain biodiversity, providing high-quality water resources, maintaining soil stability and productivity, and maintaining vegetation diversity and productivity.

Specific desired conditions that apply to the Chalender Allotment include the following:

Vegetation

- Maintain a stable to upward trend in total plant cover and range condition.
- Provide for a diversity of cool and warm season plants and maintain a stable to upward trend in cool season grasses.
- Protect Threatened, Endangered, and Sensitive plant species from adverse effects caused by livestock grazing and grazing management activities.
- Eradicate or control as many existing populations of noxious weeds as possible and prevent new introductions of noxious weeds caused by livestock management activities.

Soils and Watershed

- Minimize erosion caused by livestock grazing and grazing management activities by maintaining a stable to upward trend in soil condition and maintaining or reducing percent bare ground across each allotment.
- Protect watershed resources such as ephemeral lakes and ephemeral stream channels and downstream water bodies from adverse effects caused by livestock grazing and grazing management activities.

Wildlife

- Maintain sufficient levels of cover and forage throughout and at the end of the grazing period to support abundant wildlife populations.
- Protect Threatened, Endangered, and Sensitive wildlife species from adverse effects caused by livestock grazing and grazing management activities.

Recreation and Heritage

- Manage livestock grazing to minimize adverse effects on recreation activities and developments.
- Protect heritage resources from adverse effects caused by livestock grazing and grazing management activities.

4. MANAGEMENT STRATEGY

Livestock grazing is authorized on the Chalender Allotment under the terms and management prescriptions described below.

- Permitted livestock will remain at 115 adult cattle, but grazing period will be changed from May 20 through October 10 (144 days) to June 15 through October 15 (123 days). The delayed on-date is designed to promote greater development of cool season grasses during spring.

- Four new roadside pit tanks will be constructed: one in West Pasture, two in Middle Pasture, and one in East Pasture. Adding these water developments will facilitate improving the distribution of livestock across the allotment. The proposed pit tank sites are not located in drainages, wetlands, or on highly erodible soils, and are not located near any high-traffic roads.

- Fencing will be constructed around the following tanks: the proposed roadside pit tank in the SW 1/4 of Section 8 in the Middle Pasture, the existing tank at Mineral Lake in the East Pasture, and an existing tank along Forest Road 141 in Section 10 south of Isham Spring Wash in the Middle Pasture. Adding these fences will facilitate improving the distribution of livestock across the allotment by allowing better control of livestock access to water. The total length of new fencing will be approximately 1/2 mile and all fencing will be designed to facilitate wildlife crossing, including pronghorns.

- Fencing at Mineral Lake will accomplish three objectives: 1) aid in livestock distribution by allowing the permittee to close the gate and 'teaching' the cattle to use the new tank south of there; 2) ensuring that access can be restricted when soils are wet; and 3) the fence should eliminate vehicle travel in this 'travel restricted zone', giving the unauthorized roads created there a chance to heal over. The overall result should be improved soil condition.

5. RESOURCE PROTECTION MEASURES –The Annual Operating Instructions will incorporate specific and/or additional measures as needed per the adaptive management strategy.

1. Manage grazing intensity to not exceed **Moderate Use** category during the growing season, and to not exceed **Conservative Use** category at or near the end of the growing season when the potential for plant regrowth is limited. These intensity categories can be exceeded in limited areas where livestock concentrate: within 1/4 mile of water developments (including temporary water hauls) and salt and supplement stations; and within 1/10 mile of pasture gates.

The average growing season for the Williams Districts is:
March 15 - August 30: early to middle part of growing season; adequate re-growth is possible* after grazing. * *Adequate re-growth is not guaranteed during drought years.*
September 1 – November 15: end of growing season; not enough time for adequate re-growth after grazing
November 16 – March 14: dormant season; minimal to no growth

Moderate Grazing Intensity:

- Approximately equal to a maximum of 50% Utilization (grazing and trampling) of forage standing crop (current and previous years' growth) at the end of the growing season (November 15).
- Most of the accessible range shows some use.
- Areas between 1 mile to 1 ½ miles from water show some use.
- There is little evidence of livestock trailing to forage.
- Good forage plants have some seed stalks left (15-25% of stalks remain).
- About ½ to 2/3 of the good forage plants show some use.
- Some young plants show damage.
- Less than 10% of the poor forage plants are utilized.

Conservative Grazing Intensity:

- Approximately equal to a maximum of 40% Utilization (grazing and trampling) of forage standing crop (current and previous years' growth) at the end of the growing season (November 15).
- Rangeland may be topped, skimmed, or grazed in patches.
- Areas greater than 1 mile from water show little use.
- There is no evidence of livestock trailing to forage.
- Good forage plants have abundant seed stalks (60-80% of stalks remain).
- 1/3 to ½ of good forage plants have been grazed in key areas.
- Most young plants are not damaged.
- Poor forage plants are not grazed at all.

2. Consider a variety of factors related to drought when making decisions on annual authorization of livestock numbers and grazing period, including:

- amount and timing of current-year and previous-year precipitation received at weather stations nearest to each allotment,
- current-year and previous-year forage production as they contribute to current standing forage, c) estimates of current-year and previous-year grazing intensity,
- current and projected amount and distribution of water available to livestock (Howery 1999, Forest Service 2006).

3. Permittees must distribute livestock throughout the suitable grazing areas of each pasture using appropriate methods, including placement of salt and supplements, water hauling, or herding.

4. Livestock will not be allowed to graze at Mineral Lake or any other ephemeral wetland sites when soils are wet. Soils will be considered wet for 10 days following disappearance of standing water. At that time, soils will be assessed for saturation and range readiness.

5. Follow applicable Best Management Practices for range management from the *Soil and Water Conservation Practices Handbook* (Forest Service Handbook 2509.22) to minimize soil and watershed impacts caused by livestock grazing and grazing management activities. The following are the primary practices for this allotment:

- Monitor ground conditions before and during any future construction activities to avoid wet ground conditions that can negatively affect soil condition and water quality.
- Grazing systems are alternatively rested and grazed in a planned sequence.
- Grazing at a level that will maintain enough cover to protect the soils and maintain or improve the quantity and quality of desired vegetation. This practice will be applied through the utilization guidelines.
- Fencing to improve cattle management, control access, prevent soil loss, and improve water quality. Fencing was not designed to prevent soil loss and improve water quality.

6. Follow applicable direction in the *Final Environmental Impact Statement for Integrated Treatment of Noxious or Invasive Weeds* to minimize the risk of new weed infestations caused by livestock grazing and grazing management activities. Relevant direction includes:

- Consider weed prevention and control practices in the management of grazing allotments;
- Minimize transport of weed seed into and within allotments;
- Maintain healthy, desirable vegetation that is resistant to weed establishment;
- Minimize ground disturbance;
- Promote weed awareness and prevention efforts among range permittees.

6. MONITORING

The Forest Service and/or the grazing permittee will monitor grazing intensity in each grazed pasture at least once a year. Multiple key areas have been designated on maps and in GIS within the allotment, and additional key areas may be designated. In addition to key areas, grazing intensity will be monitored in forested areas, including Mexican spotted owl Critical Habitat.

Various methods will be used to evaluate grazing intensity, including one or more of the following (and/or new methods as they become available): determination of forage utilization, amount of forage standing crop remaining at the end of the grazing cycle, percentages of grazed and ungrazed plants, plant stubble heights, litter or carryover vegetation from previous years, and visual appearance (Holechek and Galt 2000, Holechek and Galt 2004, Holechek et al. 2004: pages 195-196 and 248-251).

In addition to implementation monitoring conducted by the Forest Service, the permittee I encouraged to monitor grazing intensity in each pasture and avoid exceeding grazing intensity levels specified above in Resource Protection Measures #1. Coordination between the permittee and the Forest Service is encouraged to help the permittee accurately determine grazing intensity. In addition, the permittee is encouraged to provide the Forest Service with actual use records for each pasture at the end of each grazing season, including 1) number, class, and type of animal; 2) grazing period; and 3) estimate of average grazing intensity at key areas on departure from pasture.

Effectiveness monitoring determines whether management practices are effective in moving the allotment toward desired conditions. Effectiveness monitoring is designed to determine the trend toward or away from desired conditions for vegetation resources, soil and watershed resources, and wildlife resources.

Range condition and trend monitoring will conducted on the allotment using Parker Three-Step clusters, Pace Frequency transects, and Paced transects. Parker Three-Step clusters and Pace Frequency transects will be read approximately every 10 years. Paced transects will be read at approximately 5 year intervals.

7. GRAZING CAPABILITY AND GRAZING CAPACITY

An analysis of grazing capability and grazing capacity was conducted in 2007. See Tables 2 and 3 for Capacity Classification by TES Map Units and Acres, respectively, on this allotment. Grazing capability of a land area is dependent upon the interrelationship of the soils, topography, plants and animals. Grazing capability is expressed as one of three capacity classes:

Full Capacity (FC) – areas that can be used by grazing animals under proper management without long-term damage to the soil or vegetative resource. They must also produce a minimum of 100 pounds per acre of forage and are on slopes less than 40 percent.

Potential Capacity (PC) – areas that could be used by grazing animals under proper management but where soil stability is impaired, or range improvements are not adequate under existing conditions to obtain necessary grazing animal distribution. Grazing capacity may be assigned to these areas, but conservative allowable use assignments must be made.

No Capacity (NC) – areas that cannot be used by animals without long-term damage to the soil resource or plant community, or are barren or unproductive naturally. In addition, it includes areas that produce less than 100 pounds per acre of forage and/or are on slopes greater than 40 percent. Grazing capacity is not assigned to sites with a "no capacity" classification.

Table 2. Grazing Capacity Classification by TES Map Unit

	TES Map Unit
Full Capacity	006, 010, 020, 324, 401, 513, 518, 519, 537
Potential Capacity	310, 311, 402, 406, 407, 525

Table 3. Grazing Capacity Acres on Chalender Allotment

	Chalender Allotment
Full Capacity	10,528
Potential Capacity	2,039
No Capacity	0

Grazing capacity is a function of grazing capability, forage production, proper use by livestock, and the level of management that may be applied. This analysis used forage production and grazing capability to determine the estimated grazing capacity of the allotment. Forage production measurements and estimates were taken on the allotment and production data from the Terrestrial Ecosystem Survey (TES) was used for any data gaps. An allowable use standard of 40 percent was used on the Full Capacity acres. An allowable use standard of 20 percent was used for all Potential Capacity acres. Areas classified as No Capacity were not considered in the estimate of grazing capacity.

This analysis revealed that under new management, permitted livestock will utilize:

- 30% of the estimated grazing capacity on the Chalender Allotment.

In terms of total estimated forage production, permitted livestock will utilize:

- 11% of the estimated forage produced on the Chalender Allotment.

Table 4. Grazing Capacity for the Chalender Allotment

Chalender Allotment	**Previous Management - 144 Days**	**New Management - 123 Days**
A) Forage Required by Permitted Livestock	567,200 pounds (709 AUM's)	491,200 pounds (614 AUM's)
B) Estimated Grazing Capacity (FC and PC acres only with established utilization standards)	1,658,164 pounds (2,073 AUM's)	1,658,164 pounds (2,073 AUM's)
C) Total Estimated Allotment Forage Production (FC, PC and NC acres)	4,389,865 pounds (5,487 AUM's)	4,389,865 pounds (5,487 AUM's)
D) Forage required by permitted livestock as a percentage of the Estimated Grazing Capacity (A÷B)	34%	30%
E) Forage required by permitted livestock as a percentage of the Total Estimated Allotment Forage Production (A÷C)	13%	11%

8. RANGE IMPROVEMENTS

1) Existing Structures

Range improvements (fencing, waters, handling facilities, etc.) are critical components of any grazing management plan. All range improvements assigned to the permittee (Improvement Maintenance Responsibilities, page 13) need to be maintained in order to facilitate proper management of the allotment.

Permittees are required to follow the District's Heavy Equipment Policy prior to beginning any ground disturbing activities which may require an archaeological survey and/or wildlife clearances.

No heavy equipment use will be authorized until:

a) We receive your request for heavy equipment use in writing;

b) Your request includes the name of the improvement(s) to be cleaned, their range improvement number, and/or a legal description, and/or include a map of the improvement;

c) It includes a detailed description of the work to be done;

d) Your request includes a timeframe for completion, an original signature and date;

e) No work will begin until we get necessary clearances (archaeology, wildlife, NEPA, etc), and provide you with a written authorization for the work, including an agreement to the extent of work.

f) The Forest Service can provide you with a list of certified Archaeologists and NEPA consultants that you may wish to use to expedite the process.

2) New Construction

Four new roadside pit tanks will be constructed to facilitate improving the distribution of livestock across the allotment:

- One in the West Pasture,
- Two in the Middle Pasture, and
- One in the East Pasture.

Fencing will be constructed around the following tanks to facilitate improving the distribution of livestock across the allotment by allowing better control of livestock access to water. All fencing will be designed to facilitate wildlife crossing, including pronghorns:

- The proposed roadside pit tank in the SW 1/4 of Section 8 in the Middle Pasture,
- The existing tank at Mineral Lake in the East Pasture, and
- The existing tank along Forest Road 141 in Section 10 south of Isham Spring Wash in the Middle Pasture.

9. MITIGATION MEASURES

The following mitigation measures apply to the Chalender Allotment.

Mexican Spotted Owl

Pine-oak forest considered Mexican spotted owl Restricted Habitat occurs in the Chalender Allotment as does Mexican spotted owl Critical Habitat.

- Use of heavy equipment for the construction of pit tanks in the Chalender Allotment would occur outside of spotted owl breeding season (after August 31 and before March 1).

Rare Plants

- Surveys for rare plants (plant species listed under the Endangered Species Act and Forest Service Sensitive plant species) would be completed before construction of pit tanks and waterlot fences. If rare plant species are found, appropriate action would be taken to avoid or mitigate negative effects (e.g., moving the location of the pit tank or fencing).

Heritage Resources

- Activities associated with allotment improvements would be managed to ensure no adverse effects to heritage resources. Before initiating construction activities for pit tanks or waterlot fencing, the South Zone Archaeologist would be notified to ensure the proposed activities have heritage resource clearance prior to implementation.
- Livestock management practices that concentrate cattle, such as placement of salt and construction of water developments, would be located so that there are no effects to heritage resources.
- Should any unrecorded prehistoric or historic archaeological sites be encountered within the allotment, they should be reported to the South Zone Archaeologist.
- Rock shelters considered archeological sites would be monitored. If cattle are using these sites for shelter and impacting the site, the shelter should be excluded from future livestock grazing.
- Should any tribes identify any plants within the allotments having traditional importance, rangeland specialists and South Kaibab heritage staff would work together to ensure that grazing management is allowing for natural regeneration of such plants.

10. FLEXIBILITY/ADAPTIVE MANAGEMENT

It is imperative that flexibility and adaptive management be considered when following this allotment management plan. Adjustments to the grazing sequence may be necessary due to weather constraints (i.e. precipitation patterns favor or do not favor certain portions of the allotment), or management activities in an allotment or pasture (P/J treatment or prescribed burning).

There may also be a need to vary livestock numbers to meet objectives. Drought may force the reduction of livestock numbers while on the other hand additional numbers above term permit may be appropriate in certain situations.

11. PASTURE PLAN

Chalender Allotment Grazing Schedule Season of Use 6/15 to 10/15 (123 Days)										
Option 1 - Deferred Rotation										
Pasture	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**	**Year 9**	**Year 10**
West	1	3	2	1	3	2	1	3	2	1
Middle	2	1	3	2	1	3	2	1	3	2
East	3	2	1	3	2	1	3	2	1	3
	Option 2 - Rest 1 Pasture Every Year									
Pasture	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**	**Year 9**	**Year 10**
West	0	60	63	0	60	63	0	60	63	0
Middle	63	0	60	63	0	60	63	0	60	63
East	60	63	0	60	63	0	60	63	0	60
Days Grazed	123	123	123	123	123	123	123	123	123	123
Option 3 - Rest 1 Pasture 2 Years in a Row										
Pasture	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**	**Year 9**	**Year 10**
West			63	60	60	63			63	60
Middle	60	63			63	60	60	63		
East	63	60	60	63			63	60	60	63
Days Grazed	123	123	123	123	123	123	123	123	123	123

12. CHALENDER ALLOTMENT IMPROVEMENTS

Improvement Maintenance Responsibilities for Donald R. Brackin & Erma L. Brackin Revocable Trust of 1993 VAD 9-04		
Chalender Allotment #00019		
Improvement Name	**Improvement Number**	**Units in Place**
Chalender/Williams Fence	2087	Fence
Dogtown Reservoir Fence	2088B	Fence
Dogtown Tank	2092	Earthen Tank
Pine Tank	2093	Earthen Tank
McDougal Flat Tank	2094	Earthen Tank
Chalender/Sherwood Forest Fence	2290	Fence
Horse Hill Fence	2292	Fence
Mineral Tank	2334	Earthen Tank
Buck Tank	2341	Earthen Tank
Buck Tank Fence	2395	Water Lot Fence
East Division Fence	2377	Fence
Chalender/Big Springs Fence	2396	Fence
West Division Fence	2400	Fence
Chalender/Woods Fence	2400A	Fence
Pancho Viejo Waterlot	2401	Fence
Lost Finger Tank	2494	Earthen Tank
Lost Finger Waterlot	2494A	Water Lot Fence
Chico Tank	2489	Earthen Tank
Nina Tank	2493	Earthen Tank
FR 141 Tank	2495	Earthen Tank
New Ranch Tank	2496	Earthen Tank
Holden Tank	2497	Earthen Tank